Thesis

The Status of the Small Plant

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Outline.

The Status of the Small Plant.

I. The small plant has been generally ignored, but its importance is undeniable.

A. Few have studied the possibilities of the plants employing less than two hundred and fifty.

1. All were blinded by mass methods.
2. There are no exhaustive studies of them.
3. The first effort to study their problems was made by the Conference of Smaller Industries.

B. Many "big business" men, as well as the times, favor the small plant.

1. Henry Ford, Charles Dawes, and Dr. Julius Klein have favored them.
2. Increased freight rates, hand-to-mouth buying, and business practice favor the small plant.

C. The Department of Commerce Survey shows small plant faring best.

II. The small plant has advantages and disadvantages, but management is most important.

A. The advantages of a small plant.

1. Low overhead is most important at present.
2. Simplicity of organization.
3. Adaptability.
4. Quick personnal response.

B. The disadvantages are generally a result of poor management.

1. Poor marketing connections need not be a disadvantage.

a. Example of an accessory manufacturer.
b. Example of a chocolate manufacturer.
c. Example of a pork packer.

2. Market demands can be known.

a. Example of manufacturer meeting demand in quantity.
b. Example of manufacturer meeting demand in style.

3. Obtaining capital and credit offers some difficulty.

a. New method of financing needed.
b. Balance sheets and profit and loss statements should be revealed to bankers and creditors.

4. Co-operative methods are lacking.

a. Small plants should exchange information.
b. Practice is being fostered by Smaller Industries Conference and the Bureau of Foreign and Domestic Commerce.

5. Accounting systems are lacking.

6. Research and product development needed.

7. Men prefer to work in large plants.

C. Management ultimately determines the success of a plant.

1. Example of a now successful candy manufacturer.

2. Example of a now successful washing machine manufacturer.

III. The small plant has a definite place in industry.

A. There are certain industries which the small plant can not enter successfully.

1. Where large amounts of capital are required.

2. Where the products are standardized.

B. The place for the small plant.

1. The products can not be standardized.

a. Advantages of adaptability, simplicity and employee versatility.
b. Higher prices and less competition.

2. The products are produced for local markets.

a. Advantages of catering to local tastes and of lower costs.
b. Large plants decentralizing to gain advantages of local production.

3. The products require skilled labor.

a. Small demand, and labor scarce.
b. Example of carving company.
c. Example of furniture company.

4. The consumers are dealt with intimately.

a. Personality businesses depend upon intimate contact.
b. Not confined to dealing with final consumer.

C. The small plant must specialize.

IV. A well managed small plant.

A. It is specializing on one product.

1. Conducts research.

2. Contacts with customers as aid to research.

B. Deliveries and profitable operation assured by

1. Division in manufacture.

2. Limit controlled stock.

3. Effective scheduling.

4. Operating standards.

C. Company budgets and forecasts sales.

D. Reasons for success.

V. The small plant has been aided by adopting big plant methods but individual treatment is necessary

A. The Department of Commerce Survey indicates that the tools of management have been used.

1. Sales policies.

2. Product development.

3. Production policies.

4. Big plant methods more effective.

B. Some methods as employed by the small plant.

1. Research conducted on an appropriation or informally.

2. Marketing aided by

a. Government bureaus.
b. Part-time specialists.
c. Trade associations and magazines.

3. A simplified accounting system.

4. A wage incentive system.

5. Accident prevention by executives.

a. Typical method.
b. With aid of safety engineer.

C. The adoption of big plant methods may take away the advantages of the small plant.

VI The small plant may have administrative and social programs without an excessive overhead burden.

A. Employee training.

1. Directed by education department.

2. Costs lessened by apprentices production, aid by government, and other factors.

B. Unemployment insurance.

1. The Rochester plan.

2. The cost

3. Other plans supported by the same company.

C. Co-operative programs have been most successful.

1. Research among competitors.

2. Research among non-competitors.

3. Health program at minimum cost.

VII Conclusion.

A. Summary.

B. This subject should be studied by business students.

1. Must under take study themselves since no texts available.

2. Knowledge important.

a. Chances of entering small business.
b. Prospects in small business.

Introduction.

It is well to make clear the meaning of 'plant' as it is used in this thesis. Webster's dictionary defines plant as: "The whole machinery and apparatus employed in carrying on a mechanical business or a business of any kind". The word is used here inclusively. However, my particular interest is in manufacturing and problems of that type are discussed most frequently. Other types of business and their problems are mentioned and used to illustrate some points.

At this time when small plants are receiving wider recognition, they offer an excellent subject for lengthy study. All of us have been impressed with the large plants' advantages, the extent to which scientific management has been carried, and the resources which enable them to operate on a vast but thorough basis. We wonder, then, how the small plants can continue to exist in the face of such competition. We wonder, too, if the small plants can use large plants' methods to their advantage.

This thesis was written to answer these questions and, at the same time, to gain a better knowledge of the small plants' problems and possibilities.

The case method of presentation is used in this thesis as much as is practical. The examples used in some in-

stances were obtained by questioning executives of small plants. However, executives generally are reluctant to reveal the barest details of their businesses, and not as much information was obtained in this way as one would wish. Other examples were taken from business reports, technical journals, and my own experience.

Many fine suggestions for the preparation of this thesis were offered by Professor Wells of Boston University; Mr. Butler and Mr. Cort of the Bureau of Foreign and Domestic Commerce; Mr. Hudson of the New England Council; Mr. McCartin of the Massachusetts Industrial Commission; and Mr. Carmody, Editor of Factory and Industrial Management.

The Status of the Small Plant.

A few years ago most of us were convinced that the days of the small business were over. It seemed that the most profitable way to manufacture and to sell was on a quantity basis, with a small margin of profit. Economists pointed out that mass methods would lower costs, and provide more jobs. Consolidations and associations were formed to gain mass advantages. Suggestions that the Sherman Anti-Trust Law be repealed were common. Business thought was clouded by the American delusion that success is measured by mass, quantity, size or cost.

The case for big business was justified, and was apparently proven in the days of prosperity. The large corporations made the most money, and naturally received the most attention. It was not realized that the size which enabled corporations to make so much money in that period would be a cause of losing money in a period of depression. In fact, depressions were considered impossible. So, in that period when business theory received more attention than at any other time, students and executives studied with the view of managing big organizations.

It is now well known that depressions are not impossible. Organizations, such as the United States Steel, are losing money on the very facilities, which once made

them the most profitable in existence. Many of the "lesser lights" in the steel industry are making money. This is one instance which indicates that the small plant has a place in the business world. The increasing number of articles on this subject proves that it is becoming a conviction.

When it is realized that the small plants in the United States outnumber the large by two hundred to one, it is surprising how little study has been made of them. There are two hundred thousand plants in this country, each of which employ less than two hundred and fifty persons. Only 3.4 per cent. of all manufacturing establishments employ more than two hundred and fifty wage earners, and only 1.4 per cent. employ more than five hundred. In other words, sixty-two per cent. of all industrial wage earners are employed in plants with two hundred and fifty or fewer employees. Some theorists might contend that the problems of all plants are similar, regardless of size. To a certain extent this is true; but the limited financial resources, and the small scale of operations, make the problems of this group peculiar. It is only within a short time that this fact has begun to be realized.

The first real effort to study the small plant's problems was made less than two years ago, when a Conference of Smaller Industries was called at the Industrial Insti-

tute, Silver Bay, New York. A second conference was held this past year,and both were so successful that these meetings promise to become annual. Prior to these conferences there have been only a few instances where any mention of this subject has been made. Some of the technical magazines have printed short articles,but an exhaustive search has failed to find any text devoted exclusively to small plant management.

Although general interest has been lacking, it appears that some of our "big Business" men appreciate the possibilities of the small plant. In a recent interview Henry Ford said: (1) "The comparative prosperity enjoyed by New England is due to the fact that there are many small industries"; and, "only through the distribution of work can the evils of depression be overcome". The latter quotation refers to the Ford program of extending its purchases from five thousand, three hundred to fifty thousand small plants manufacturing parts, which incidentally shows the big plants' dependence upon their smaller brothers. These statements are most significant, coming as they do from the nation's foremost industrialist, and one of the pioneers in mass production.

Mr. Charles G. Dawes, the former president of the Reconstruction Finance Corporation, and head of one of the world's largest banks, said recently: (2) "It is the smaller

(1) "Ford Planning to Aid Industry'. Boston Sunday Post, Nov. 13, 1932. Page 4.
(2) "Factory and Industrial Management". July, 1932. Page 4.

business enterprises with low overhead expense which seem to be showing improvement; but in time, the larger ones must necessarily follow. The recovery in the depression will start from the bottom up, not from the top, down. That is what past experience shows".

Dr. Julius Klein, Secretary of Commerce, has this to say about the small plant, and the times: "In several trades it has been evident that the little fellow's lack of heavy overhead, his relatively greater mobility, his lack of far flung advance commitments, have all enabled him to readjust his operations and planning on a much more elastic basis, permitting him to accommodate himself far more quickly to the sudden shifts in the economic scene.

Once again we must be sure that we do not let our mass mania get the better of us in assuming that size is an advantage in times of stress. The big fellows are sometimes the most vulnerable because of their sheer bulk and ponderous immobility".

The stamp of approval by big business men argues well for the small plant, but there are more economic reasons for favoring it; and these are largely a result of the times.

"Factory and Industrial Management", Feb. 1932, Page 56.

Freight rates have been increased, and the possibility of still higher rates makes local production and distribution of many products a necessity, if competition is to be met. When the distribution of products is limited to a local area, it follows that the size of a plant is limited to the capacity for supplying the local demand. For most products, a small plant is sufficient. The increase in freight rates, with resulting excessive transportation costs, and the plan to serve local markets, are the reasons why New England gained eighty-two plants in the first three months of 1932; the city of Philadelphia, forty-four; and Louisville, twelve; all of the small plant variety.

A change in attitude on the part of purchasing agents and buyers has brought about another condition favorable to the small plant. It is not so long ago that many factories and stores bought sufficient goods at one time to last six months or a year. The past few years have witnessed the practice of buying only to satisfy immediate needs, or "hand to mouth' buying. Along with this practice, buyers insist upon quick accommodations, and services suited to their individual needs. The small plant catering to local customers, and with closer personal contact, can meet these conditions much more satisfactorily than the large, impersonally conducted

Statistics from "Business Week", Oct. 5, 1932. Pages 12-13.

organization.

The editors of Factory and Industrial Management commented upon another advantage: "Large and established businesses tend almost uniformly to cut operating costs at the expense of increasing fixed charges. This tendency, which operates to the advantage of the large concern in boom times, reverses itself in a period like the present. The small firm can often pull in its belt a notch, and find a little money to go on, while the larger firm is hard put to it."

In the fall of 1931, the Department of Commerce released a booklet entitled "Forging Ahead During Depression". This booklet contains the findings of a study of firms, which through their own efforts and policies, have been able to increase their sales volumes, or profits, and represents two hundred and two manufacturers, forty-three retailers and ten wholesalers in thirty states. The Department admits that this study was in no way exhaustive; neither was it directed at firms of any particular size. It is surprising, therefore, that three-quarters of the firms, which were able to increase their sales or profits, were of the small variety. These firms used management methods usually associated with large organizations, and made money.

These findings seem to indicate that small organizations can use management methods more effectively and more economi-

"Factory and Industrial Management", Oct. 1931. Page 516.

cally, especially in a period of business stagnation.

Advantages and Disadvantages.

It would be well to make clear that this thesis does not predict the fall of the large plant. Large plants accomplish what no small plant can expect to accomplish, especially those producing standardized products. Their existence and growth are assured. However, this thesis does contend that small plants have a place in industry, and that their advantages can overcome their disadvantages.

At the present time, low overhead expense is probably the greatest advantage. Investment and fixed charges are low. The payroll for office help, salesmen, minor executives and indirect labor is comparatively small. Foremen and inspectors are few, because employees can be trained to take pride in their work and do it well. Maintenance is in proportion to plant size. So, the principal overhead expense is the salaries of a manager and one or two assistants.

The organization of executives and the vesting of authority is always a tremendous problem in any plant. It is not uncommon to find in offices an organization chart showing who gives orders, and who receives them. Some charts appear to be very simple with no possibility of confusion or conflict regarding authority. The charts for large organizations are apt to be complicated. They present a maze of

bureaus, executives and assistants, with lines crossed and re-crossed, showing authority going to several different points. In actual practice, the authority may become much more confusing than the chart would seem to indicate. The possibility of confusion increases with the number of executives and departments.

The small plant has no such problem. One executive, sometimes with a few assistants, is what a great many executives and bureaus strive to be in the large organization. Such simplicity is a decided advantage. Many executives cause complications, jealousies, lost motion and delays. When there is only one executive, changes can be made without conferences, and without mistaking authority or responsibility. He is his own efficiency, planning and safety department; and if anything is to be done, the chances are he will have to do it himself. He can act freely, quickly and efficiently, all pointing to good management.

In most discussions of this subject one encounters this comparison: "A small plant can turn around on a dime, while the large one has to be laboriously warped around like a huge ocean liner changing clocks." The thought suggested is that the small plant can more easily meet changing conditions; that is, it has adaptability. Adaptability has become an increasingly important charac eristic, because of styles chang-

American Magazine. Nov. 1932. Page 88.

ing more rapidly, with resulting changes in demand, and because we are in a period of depression.

The wool industry furnishes an excellent example of the effect of increased rapidity in change of demand on a large plant. Manufacturers of woolens used to receive orders for enormous quantities of cloth, and the machinery in woolen mills was set up so that a long run could be made with a minimum of expense. Large orders are a rarity today, because dealers cannot afford to take the risk of stocking heavily on style goods. Small sample orders are the rule, and a large mill can not handle them without disorganizing operations, because of periods of activity and idleness. This condition would increase expenses and decrease the possibility for profit.

The small woolen mill has a definite advantage when small orders are the rule. Because of its size and limited output, such a mill can operate almost continually on small orders. Any periods of idleness are not so expensive, because of comparatively low overhead. Changes in machinery and set-up can be made with a minimum of delay and expense. Adapting a plant to meet changed conditions and changing demands, is not a new experience to the small mill owner, because he has always existed on small specialty orders. Adaptability has been a necessary part of his business.

When small sample orders became customary rather than exceptional, it was because his plant had adaptability that he was able to underbid the larger mills.

The importance of adaptability during a depression is noted in the case of two foundries. In the days of prosperity, one was a huge, highly standardized plant, employing well over a thousand men, making fittings of malleable iron, steel and brass. The other was a small foundry, making crucible steel parts for trucks and job orders. Since the depression the large foundry has been running on part time, and has lost a tremendous amount of money. Of course, the small foundry was affected, but to a lesser degree.

Recently, both companies had the opportunity to manufacture an oil burner for a local inventor. The order was not large enough to warrant necessary changes in the equipment of the large foundry. The only changes in the small plant were the additions of two finishing machines, and the hiring of two machinists. These changes did not involve any great additional investment, yet they did result in obtaining sufficient business to keep the plant operating steadily and profitably. While it is not always advisable to add new products, the fact that this small plant could easily adapt itself to the manufacture of something entirely different, resulted in its salvation.

Another advantage is quick personnel response. Large

corporations spend tremendous amounts of time and money in order to create a spirit among their employees. They pay bonuses for certain achievements, grant vacations with pay, sponsor athletic and recreational activities, assist employees in buying company stock, and pension employees of long service. The idea behind these various programs is to make loyal and efficient employees. While the motive is laudable, the methods become so artificial and paternalistic, they often fail to accomplish the desired result.

Loyalty and efficiency are personal characteristics, and they can best be gained by a personal method; that is, by the encouragement and enthusiasm of the employer. Mr. Charles Schwab once said: "I have never seen a man who could do real work, except under the stimulus of encouragement and the approval of the people for whom he is working".

The small plant manager, because of his intimate contact with employees, has the opportunity to offer words of encouragement and approval personally. His words and meaning are not lost in being handed down from executive to executive. He knows his employees, and learns how to get the best results from each individual. He can give an order, a word of encouragement or praise immediately, and sincerely. The personal element makes quick response, efficiency and loyalty more assured than when an artificial thing is depended upon.

'Factory and Industrial Managgement'. Aug. 1932. Page 303

The small plant is not, however, a Utopia in the industrial world. It has its share of disadvantages, as well as advantages. Sometimes, disadvantages result from manufacturers going outside the field for a small plant, but, generally, they are results of poor management.

It has been said that the great weakness in the structure of small plants is due to poor marketing connections. Most small manufacturers depend upon one or two wholesalers, or go out on the road selling, themselves. Obviously, it is not good policy to limit the channels of distribution to one or two wholesalers. The practice of having the head of a business act as the whole sales force, is just as questionable. It is extremely unlikely that either method will produce sufficient orders to keep a plant operating steadily, and, when a chief executive, or owner, is on the road, the plant is very apt to suffer by his absence. In either case a little ingenuity can overcome these disadvantages, as the following examples prove.

A manufacturer developed some accessories for popular priced cars. His other products were sold directly to automobile manufacturers, therefore his sales organization was not adequate or trained for dealer trade. Instead of developing his sales organization, he arranged to distribute his accessories through the automobile manufacturers' parts de-

partment. In this way he reached dealers throughout the world, and got the widest possible distribution for his product.

It might be objected that one manufacturer will not push another manufacturer's products. That condition is possible, but in this case the accessory plant is operating at full capacity. And that, after all, is the test which determines the success of a distributing plan. At any rate, it is an unusual plan and one which will readily fit the needs of other small manufacturers.

A manufacturer of chocolate products and syrups has another solution for the marketing problem. He makes and improves his products, so that they are the best on the market, and they actually sell themselves. He introduced these products by showing dealers how to increase their profits by using quality materials. He says: "After we had developed a sufficient list of customers, we were kept so busy taking care of them and helping them to increase their profits that we did not have time to go out looking for new customers. But we got new customers. For people began coming to us to inquire if we could do for them what we had helped others to do. We took them on, of course. This increase has been attained, year after year, without salesmen. We have men who call on our customers, but their whole function is to help the customers make money from our products.

"Factory and Industrial Management". May, 1931. Page 791.

Our men do not solicit orders. They are service men".

A packer of high grade pork products solves the distributing problem by acting as his own wholesaler. He runs a series of advertisements in the newspapers of the section to be developed. Orders are filled by mail until the demand becomes so great that dealers come to him, offering to act as retailers. When a good demand has been established, he drops the newspaper advertising, but maintains interest in his products by advertising in three nationally popular magazines. This method is not too expensive. The first year this packer spent five thousand dollars, but the resulting demand so increased his business that he now spends twenty thousand dollars on advertising, and obtains a good return.

There is not a solution for every manufacturer's distributing problem in these examples. They do show, however, that some manufacturers have found methods which assure them of adequate distribution, and that distribution need not remain a disadvantage of the small plant.

Many small manufacturers are criticized as being out of step with the market demands. The demand is known only when the boss goes out selling, or attends a convention. One manufacturer selling to a chain store system has a simple, inexpensive method by which he keeps well informed on the market demand, and governs production accordingly. Each article leaving the factory has a card attached, describing its type, size and

color. The tag is taken off at a store when a sale is made, and at the close of business each day the tags are sent back to the factory. There, a clerk checks the tags against the inventory and the goods in process. With this daily check there is little danger of becoming overstocked, understocked, or being caught with a large stock when the demand ceases.

The question of meeting the market demand in style is another difficult problem. Many of the large firms have specialists located in style centers throughout the world, who report frequently on style trends. Such a staff is too expensive for the average manufacturer, and the result is, frequently, that a style has taken hold and is well on the way towards its peak before he knows anything about it. He is either left out of the picture or starts to manufacture when the style has reached the less profitable stage.

A manufacturer of silk stockings has been particularly successful in anticipating style demands. He receives reports from cloth weavers, clothes and shoe manufacturers, and learns of new developments in fabrics, colors, and designs. His own designers use this information in bringing out shades and weaves which will harmonize with the new styles. Up to this point his method is exactly the same as many others, but it is unique in that he maintains one store on Fifth Avenue, New York, the style center of America,

and where styles receive their first test. In this store the sales of new offerings are noted, and the leaders determined. With this information, sales for the rest of the country can be accurately forecasted before the style has taken hold.

Obtaining operating capital from banks, and credit from business houses, offers many difficulties for the small owner. In boom times he has money, and credit is freely granted. When business is dull he has trouble in getting money, because the bankers do not know him or anything about his business. Credit is restricted, and he is often in a sorry position.

A survey shows that twenty per cent. of all business is dependent upon banks, and three-quarters of these concerns have fewer than two hundred and fifty employees. The survey also finds that it is clear from investigations that as regards any form of bank assistance in the way of long term credit, the small manufacturer is out of luck; and it is among such concerns that the demand is apparently largest. Some consideration of meeting credit needs more satisfactorily and more dependably than through the regular channels.

One thing that should be copied from the large industries is the practice of publishing, or at least disclosing to bankers and creditors, the small company's

"Business Week." Oct. 5, 1932. Page 12

balance sheet, and profit and loss statement. Most bankers are interested in the condition of a business, whether a loan is sought, or not. An occasional trip to the bank with these statements will do much in the way of procuring good advice, as well as establishing a contact for future loans. The same is true of creditors. Any firm is more lenient on questions of time and money, when a debtor is known to be in good financial condition, even if temporarily embarrassed. Revealing the financial statements of many small plants would be much the same as revealing one's personal bank book, something which is just not done. But the injury to the owner's pride or modesty would soon be healed by the benefits accruing from a better appreciation of his financial standing.

The lack of co-operation often proves a disadvantage. Small plants might well foster the practice of exchanging information and solutions for common problems. It is not unusual for the executives of large firms to help or advise a competitor. Some go so far as to lend engineers and skilled mechanics. It is a common occurrence to find detailed articles in technical journals explaining just how various phases of management, production, or research have been handled in large plants.

The first step to foster this practice among small plants was taken at the Smaller Industries Conference; and

the Bureau of Foreign and Domestic Commerce, through local organizations, is lending a helping hand. With their aid it is probable that the day is near when information will be freely exchanged.

Some small owners consider their intimate knowledge a sufficient accounting system. Guess work and experience are their bases for control, especially of costs. The result is that costs are not accurately known, contracts often yielding no profit, and bankruptcy sometimes follows. Fortunately, this is not a blanket criticism, because many plants have model accounting systems. It is worthy of mention, however, because the findings, in an analysis of five hundred business failures, showed that one-fourth kept no books. Other causes were that one hundred and fifteen had never taken an inventory, seventy-two were bankrupt from bad debts on open accounts, and seventeen from instalment losses. These causes are obviously a result of poor management, rather than because of particular disadvantages.

The lack of research and product development facilities often prove a disadvantage to the small plant. Limited resources and the danger of adding to the overhead burden cause many manufacturers to try to get along without these important departments. Manufacturers of established, stab-

Statistics from "Business Week". Jan 13, 1932. Page 13.

ilized products can get along for a while, but the possibility of eventual improvement in product and process makes research a necessity, if competition is to be met. While it is admitted that a research department can not accomplish as much, generally, as in plants with unlimited resources, the field is proportionately smaller, and concentration on a few specialties makes research practical. It is shown in a later section how some manufacturers are coping with this problem practically and profitably.

In periods of business activity, small plants have difficulty in maintaining an adequate personnel. There is a glamour about the large plants which attracts all men; higher wages, better working conditions, bonuses, pensions, steady work over long periods, and other attractions cause men to flock to large plants. Here, it is clearly the problem of the small owner to make employment in his plant as attractive, or more attractive. The ability to pay prevailing wages and to offer good working conditions, rests upon management; and the present depression proves that large plants have no monopoly of steady work. Plans for bonuses, pensions and unemployment insurance have been made practical for businesses of all sizes. It is entirely up to the owner whether the small plant will be faced with this problem in future periods of prosperity.

The success, or failure, of a business, is not due to

size, advantages, or disadvantages. The quality of management ultimately determines how a plant will fare.

A candy manufacturer, with all the advantages of a small plant, was on the verge of bankruptcy in 1929. A new manager was retained, and he has successfully brought the concern up to a profitable position by management principles. These included: "Adjustment of sales territories by analysis of costs"; "concentration on items and territories showing bulk of gross sales"; "concentration of advertising on new items and most profitable old items"; "returns and allowances cut to minimum by more careful packing and not overselling"; "monthly inventories and not allowing supplies and materials to accumulate"; "sales and selling expenses tabulated monthly"; "each item costed weekly".

Another small company manufacturing washing machines lost two hundred thousand dollars in three years and became bankrupt, because of poor management. The stockholders bought the assets, and appointed an experienced factory manager. In less than a year, the company was manufacturing profitably, and was obtaining an excellent sales volume.

Profitable operation was secured by the use of ordinary

"Forging Ahead During Depression". Pages 10-11.

management principles. Manufacture was concentrated on three models, and experiments determined stronger materials and cheaper methods. Machinery was relocated to gain the advantages of an assembly line. An inventory system was set up, and the stock room was equipped with bins designed and designated for particular parts. A cost system was installed showing lot and unit costs, direct labor cost for machinery assembly, painting, and so forth. Research was undertaken and a more reliable machine was produced. A wage incentive plan was installed and increased production per man from two to four machines a day. It is apparent by the consequent reforms what chaos resulted from the former poor management.

The Place for the Small Plant.

There are certain industries which are almost definitely closed to the small manufacturer. Such industries as the railroad, telephone, sugar, electric, and automotive, require huge investments and are dominated by big companies. This does not mean that a small organization has no opportunity in these particular fields, because facts prove the contrary. For instance, there are many independent telephone companies in northern New England, and nearly two hundred in New York State, which are aided, rather than fought, by the big company. There are several small independent electric power companies which are equally successful in the same states. It is not so long ago that the newspapers told of a small railroad in Kansas, which was so profitable that it sold at a price which was equal to ten times the capital invested. Two or three names are usually associated with electric motors, but a glance through any technical magazine will show that there are many more; in fact, there are four hundred manufacturers of electric motors in the United States.

It is generally conceded, however, that the small fellow has no place in such industries. Tremendous amounts of capital, years of experience, established reputations, efficient organizations, and superb equipment, constitute the background of such companies, and it is a hopeless task to

compete with them. Any small plants in these fields are not there in competition with the large, but rather, because some local condition, or, as in the case of electric motors, some specialized need makes a small plant more practical.

The small plant is out of place in a field where the product can be manufactured by mass methods. Mass purchases, mass production, and mass distribution require capital, equipment and an organization far beyond the means of the average independent owner. Entering this field on a limited basis would mean eventual elimination, because of higher costs and the resulting inability to meet price competition.

No hard and steadfast rule can be stated which would limit the small plant to any particular processes or industries, because of too numerous exceptions. There are, however, certain places in the manufacturing world for which the small plant is particularly fitted, and which offer a greater possibility for success than others, because its size and advantages are put to full use.

Much of the goods which are produced today can not be standardized because of styles, individual tastes, particular requirements, and so forth. The manufacture of non-standardized goods offers an especially good field for the small plant. A glance through the manufacturers' directory shows that any number are in this category. A

jewelry manufacturer has forty-seven hundred designs for pins, rings, and pendents. A specialty machine manufacturer has received in one mail the vastly different orders to straighten shafting, and to build an excelsior making machine.

Simplicity and adaptability enable the small plant to fill a variety of orders to its advantage. There are no rigid production schedules to be broken or machine lines to be changed. Employees are necessarily versatile, and can capably perform various tasks; in fact, it is not uncommon for a single employee to complete all the operations on a job.

Prices are higher and yield a better profit per unit than standardized products. Demand for such goods is not great, and competition is not apt to be so keen. The manufacturer of this type of product who has gained a following, usually gets a top price, simply because the customer knows from experience that he is assured of the type of work he wants.

The second place for the small plant is where products are made for local markets. Here, the small manufacturer can well meet competition by catering to local tastes, establishing good will, taking advantage of low selling and transportation costs, and concentrating advertising. Personal supervision and quick service more easily satisfy local

demands. Rendering the best possible service has always been good business policy, and the local manufacturer is most capable of it. Many large producers have been forced to establish local units to gain these advantages.

Popular prejudice also favors the local manufacturer. Other reasons aside, people still buy from local firms because "it keeps the money at home", or, because the owner is a "native son". This sectionalism is encouraged and capitalized upon by appealing to local pride with such slogans as: "Buy New England Dressed Pork", "Shop at Home", and "Patronize Local Industry". The logic of sectionalism is questionable, but it certainly favors local manufacture.

The depression has caused many manufacturers to decentralize, and locate their plants to produce more advantageously for local markets. Large manufacturers are faced with the problem of meeting the competition of the little fellows that are springing up. North Carolina, up to a few years ago, was primarily a cotton-growing state, but in 1931 it attracted twenty-eight new manufacturers of food products,and it is probable that manufacturers who have been shipping their products into that state will soon find a diminishing market. The clothing industry is faced with the same problem. Many small manufacturers of clothing have located in Boston and other large cities, expecting to supply only the local markets. These producers can under-sell

the distant manufacturer because of low overhead, small selling expense, and a faster turnover on a small investment. In fact, this situation has become so formidable that "manufacturers of nationally distributed consumer goods wonder whether the increasing number of small manufacturers may force a decentralization of production, and result in an eventual re-alignment of production and distributing facilities."

The third place for the small plant, and, potentially, the most profitable, is where the products require skilled labor. There is always a demand for products that have particular beauty, quality, or durability, such as can only be produced by skilled labor. Products of this type are generally sold at a price beyond all proportion to their manufacturing cost. Ordinarily, the demand is not great enough, and in some cases there is not enough skilled labor available to operate a large plant.

There are many interesting and unusual illustrations in this type of business. For example, in the granite industry, plants often contract for a job on which there is a bit of work, such as statues, gargoyles, friezes, and so forth, calling for men of more than average ability, in fact, artists. At least one man has established a good business by supplying carvers to do this work on a contract basis at the plant requiring it. There is not much of this high-

"Business Week". May 25, 1932. Page 22.

ly artistic work, but by supplying carvers for jobs throughout the country, it becomes a profitable business employing twenty-five to one hundred men.

A more common example of the small plant depending upon skilled labor is found in the furniture business. A company was founded upon the principle that real craftsmanship is appreciated; and its chief products are chairs and tables, which are faithfully produced replicas of antiques. These pieces are almost entirely hand made by craftsmen brought from Europe; the only machine work is in roughing out, the work of apprentices in olden days. The proportion of hand to machine labor is five to one, because all jointing, antiquing and finishing is done by hand.

One might question how a company making such high priced, class products will fare during a depression. This company has added a line of bed-room suites made of inexpensive woods, finished in an early period manner, which compare favorably in price with machine made furniture. To do this, overhead expenses were cut, and the employees preferred to work steadily at lower rates, rather than to work one or two days a week at the old rates. And, incidentally, adaptability in this plant is again a saving characteristic. On contract work for single pieces the company regularly under-bids large competitors, because no production schedules or machine lines need to be

changed, and, consequently, costs are lower.

The fourth place for the small plant is where the consumers are dealt with intimately. Close, intimate contact, and the resulting understanding of a consumer, empowers the proprietor to sell service and goods, which gains and retains a consumer's good will. The independent grocery store competing successfully with surrounding chain stores is a common thing. Prices in the independent store are generally higher, but for many, the personal atmosphere and friendship is preferable to gaining a few cents price advantage. People seem to feel that their wants are better satisfied when dealing with a proprietor, and rightly so, for such intimacy leads to a particular knowledge of a customer's requirements and more latitude in satisfying their demands.

There are businesses known as "personality businesses", which depend upon intimate dealings. Dressmaking, cosmetic, perfumery, hotel and restaurant businesses are often successful, because of the personality of, and the intimate contact with, the owner. Certain dressmaking, cosmetic and perfumery salons have become internationally famous, because the owners have maintained the policy of personal shopkeeping, and lend their skill and time to satisfying their patrons' wants. This is true of the salons conducted by Poiret, Chanel and Rubenstein, which have grown beyond the small category. Men patronize certain tailoring establish-

ments, because they feel assured of good work, when the proprietor assists or supervises the selection of cloth, the measurements and the fittings. Here, in New England, where vacation spots abound, we all know of hotels which have practically the same clientele year after year, because the owners make it a policy to cater to individual demands. Hotels often advertise "resident ownership", suggesting a personal, home-like atmosphere. Personal attention in any business is good sales policy, because it gives a feeling of personal importance.

Dealing with consumers intimately is not confined to trade with the final consumer. Many small plants directly supply large manufacturers with semi-manufactured goods, equipment and supplies. Much machinery is manufactured to the order of the user, and supplies such as tools, abrasures and parts are usually sold directly. Many small plants sell semi-manufactured goods to automobile manufacturers for assembly.

It should be noted that, in every case, the place for the small plant is characterized by some form of specialization. Without this characteristic, a plant loses an important advantage, and soon becomes burdened with disadvantages it can least afford to bear. Other advantages of simplicity, adaptability, low overhead, and so forth, are

lost, and failure soon follows.

A Well Managed Small Plant.

From this general description of the field, it would be well to view the methods and policies which have made one small plant a leader in its line. This company specializes in the manufacture of high tension electrical equipment. It is successful, and might well serve as a model for any small manufacturing business.

This company has not been discouraged from research efforts, because some of the larger electrical manufacturers have more research engineers than it has employees. The management believes that a limited research program can accomplish much in this specialized line. To prevent this activity from becoming too expensive, it appropriates a percentage, based on experience, of its total expenditures. Thus a balance is maintained between the cost and the value of the ideas produced.

The goal of this program, like that in most laboratories, is to "contact with the development needs of an industry, and thinking ahead of these needs to anticipate tomorrow's requirements." However, there is an unusual tie-up between research and sales for the attainment of

"Factory and Industrial Management". June, 1931. Page 281.

this goal. Salesmen, because of intimate contact, are most familiar with the user's requirements. It is logical, therefore, that the sales department furnish suggestions and recommendations for the direction of research activities.

There is another tie-up between sales and research in the minds of the management. The management considers research a form of insurance, guaranteeing trouble-free products, the best means of obtaining repeat orders.

It is necessary for all companies to give adequate service and deliveries, and at the same time keep inventory investment and manufacturing costs at a minimum. To meet these problems, this company has divided manufacture into production of standardized unit parts for a limit controlled stock, assembly of parts, and the production of special parts to customer's order. The unusual part in this plan is that production is in charge of the stores department which releases work to foremen, moves it from department to department, and finally into stock when completed.

Stock is controlled by a minimum limit card system. When a part is down to the minimum quantity, a requisition stating its use is sent to the factory manager for his approval before the part is ordered from the factory. Since the factory manager is in touch with the sales demands, this has proven to be an effective means of minimizing the investment in stock and the loss through obsolescence.

"Factory and Industrial Management". June, 1931.

An additional provision in the stores system, insuring service as well as reducing losses, is in the form of another requisition. The sales department may request the plant executives that any part, for which they think there is a sufficient demand, be put in stock. On the contrary, it is the duty of the sales department to request the withdrawal of a part for which they feel there is an insufficient demand.

The method of putting an order into work is much the same as one finds in many well managed shops. When an order is received, a bill of materials and an instruction sheet is made out. The bill of materials is sent through the stock room, and the quantities are deducted from the stock records. For parts and items not in stock, sub orders are made out, giving necessary information as to materials, specifications, delivery, date, and so forth; and spaces for hours of labor, rates, and overhead cost.

The sub orders are made out in triplicate and serve several purposes. The original is for the production office. The second is sent to the foreman. The third serves as a cost and time record, and tracer. The tracers indicate the progress of a job, because upon the completion of the work upon the sub orders the tracers are sent to the production office to be matched with the originals.

The number of originals without tracers indicates just how much of the job is to be completed.

A simple but effective scheduling system is used. When a job is delivered to the foreman, it is placed in a rack as a customer's order, a stock order, or a replacement order, according to the sub order classification. Customers' and urgent orders are first put into work, then back orders, and finally, stock orders. In making a turn about the factory, the factory manager can judge the amount of work for each department by the appearance of the racks, whether it is piling up or running out, and make any necessary adjustments.

To insure the progress of a job, operating standards, standard practice and route sheets have been worked out for standard jobs. Tools and drawing lists are put with each job before it is started, and there is a bonus system on all regular operations. Standard manufacturing schedules have been drawn up so that salesmen can make reasonable promises for dates of delivery.

It is not surprising that a company which has manufacturing in such complete control should be equally successful in financial matters. Expenses and expenditures are controlled by a budget, and conservatism is its keynote. Sales have been forecast very accurately.

The reasons why this company enjoys its present well established position, are apparent. It is specializing on one line, and with the aid of research, it is turning out the best products possible. It is serving customers quickly and efficiently, and in a way that makes manufacturing profitable. It has perceived the need for planning ahead and does so by means of a budget and sales forecast. It has recognized the limitations of a small plant and has adapted, rather than adopted, big plant methods. Summed up, the reasons are good management, well directed.

Big Plant Methods an Aid.

Certain types of business have been suggested as being the most promising for a small plant. Type, however, no more than size, can be considered the road to success. Management is the prime and ultimate determinant. The Department of Commerce Survey, which was conducted to establish the reasons that have enabled some companies to maintain or increase profits or sales during the depression, found small plants prospering by policies usually credited to large, scientifically managed organizations.

The companies which attributed their good business to sales policies gave these reasons: "More thought to the training and direction of salesmen"; "sales territory adjustments"; "market research to increase sales and to disclose inefficiencies"; "greater co-operation with dealers in the form of better window and counter displays, and improving dealer merchandising"; "studying and adjusting sales cost"; "extending credit";"increasing sales outlets"; and so forth. It is particularly noticeable that none of the companies decreased sales efforts, and that none diminished advertising.

The manufacturers, who credit their product, gave these reasons: "The addition of allied products"; "pack-

"Forging Ahead during Depression". Page 136.

aging that appeals to customers"; "constant research for product improvement"; "development of new products", and "quality appeal".

In the matter of production: "Careful, shrewd and conservative purchasing"; modernization of machinery and equipment";"reduction of operating expense"; "overhead reduction"; stabilizing production, thereby eliminating costly fluctuations"; and 'no over-expansion in the past, so present organization can be maintained", were reasons for profitable operation.

One conclusion that can be drawn from this survey is that the executives of prospering small plants realize and appreciate the importance of management. The reasons given show that methods and policies,long considered the property of large organizations,are being used to advantage by the little fellows. The small plant has been aided immeasurably by them, and coupled with advantages of size, its present good showing is possible.

It is interesting to learn how big business methods have been trimmed and applied to the small plant. While it is true that some small units have no need of them, it is also true that many are profiting by them.

Research has long been considered a program for corporations with unlimited resources. A previous example illus-

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trates how a small company has conducted research in a specialized line on a limited appropriation, so that it has been a paying venture.

Research probably suggests too much to be considered by many owners. Some, however, while not glorifying their efforts by the name, research, do experiment. In one plant it is unnecessary to study neither the materials, because nature made them unchangeable for practical purposes, nor the designs, because they are furnished with orders. Better methods of manufacture are sought by experiment. Any one in the factory may make a suggestion, and those that seem reasonable are attempted. Many fail, of course, but their cost is far over-balanced by the savings from those proving successful.

Some surprising savings have resulted from these suggestions. In one case the raw material was to pass through two machines, one to rough out, the second to finish the work. The suggestion was made that after roughing, several patterns be clamped together, and finished in the roughing machine by changing the abrasive and easing the feed. This method would not be so expensive because of less setting-up time, and five patterns could be finished in the time of one. It was a skeptical management that tried the plan, but it worked. Occasionally the finishing machine is used, but the new method saves thousands of dollars each year, as well as partly revolutionizing the industry.

To gain some semblance of being scientific, many small plants have copied marketing methods. Most small organizations have neither the executives nor the resources enabling them to analyze markets. Probably, the government bureaus have been of more aid in making this possible than any other agencies. The Bureau of Foreign and Domestic Commerce has a tremendous amount of information that is helpful to any business. Other bureaus and departments are of equal aid.

The Bureau of Foreign and Domestic Commerce was not set up as an agency or brokerage. Yet, it has facilitated and developed exporting for small organizations. At least one company owes its present volume of business to this bureau's aid in marketing its product in Europe and South America.

Specialists and marketing agencies have been a boon to the small plant. It is usually impractical to retain their services on a full time basis, but their services can be obtained as needed for the study of particular problems. One firm engaged a sales analyst to investigate their marketing activities, and his findings were so startling, that the management set up a market research laboratory, because it is less expensive than the previous less scientific program.

Trade magazines and associations have helped others in the distributing problem. Associations usually have figures showing the coverage in any particular community. The editors of a trade magazine were able to select a practical number

of the more important distributors from a field of two thousand for a company seeking an outlet for mill supplies.

It has been pointed out that the lack of an adequate accounting system is a frequent cause of bankruptcy. Cost accounting is notably rare in small plants. Costs are established, either by pure guess, or by inaccurate computation. Just why this condition should be extant defies reason. Certainly it is not because cost accounting is impractical. Elaborate systems are not necessary; neither is a high salaried accountant.

A very small woodworking mill has this simple cost system, which, incidentally, includes a production and inventory record. Only seven forms are necessary for the three. When an order is put into work, it is noted in a production book, and described on an order card. A stub from this card is kept on a production board in the office to show what orders have been put into work. The record form is a material requisition with spaces for materials cost. The third is a foreman's daily time report, and the fourth, a summary of the labor hours on each job. The fifth is an envelope kept in the office as a goods-in-process record. When the cost of a job is computed from the material requisition (2), the labor summary (4), and the overhead added by a percentage based on experience, the total cost is recorded on a sixth form, as

finished goods. The first, second and fourth forms are put into the fifth, and filed as a record of the cost of the job completed. The seventh form is a bin card, merely for identifying and recording.

This system is simple and accurate, and has proven practical, having been in use for several years. No special skill is required to maintain it, and it is not expensive. These characteristics make it readily adaptable to many small manufacturing establishments.

Wage incentive systems are not common in small plants, yet their use leads to cost reduction. The impression prevails that the possible savings from their use would not equal the cost of installation, extra clerical help, and the salary of checkers. Another impression is that incentive systems can be based only on straight line mass production, that is, where there is identical repetitive action.

The example of a small, sheet metal jobbing plant, operating on an incentive system at a cost of twenty-five per cent. of the resulting savings, should dispel both notions. Certain jobs, such as loading and stacking, are repetitive, and were easily put on standard. Other work is not repetitive, but alike. In preparing for a job a workman must make certain trips for tools and materials, and zones were established to cover every possible trip. The number of necessary trips can be counted on the job specifications, and a time

allowance is made. The time necessary for laying out is estimated by the checker when measuring the completed job.

Standards were set for the remaining operations. Every job may be different, but they all involve like motions. For example, every job involves cutting a straight or curved line, by machine or by hand, corners, soldering, bending, rolling, and so forth. Setting a standard,by placing a value for an inch of cutting or soldering, or for an inch of circumference in rolling, was fair and practical.

The same method is used in the building stone industry. Stones are rarely alike, but like operations are used. Thus, a value is set for inches of chiseling, inches of moulding, square inches of joint area, and so forth.

Possibly the most widely copied policy, and the methods to accomplish it, is accident prevention. While small companies can not afford to hire a resident safety engineer, company executives are successfully assuming their duties. Some are retaining safety engineers for regular visits, since the insurance companies have made it possible to secure their services for a day at a very low rate.

A typical method finds an executive impressing upon the foreman, and they, in turn, upon the workmen, the need for accident prevention. In very small plants this is done directly at workmen's meetings. Reports of accidents are read, suggestions for preventing similar accidents are sought, and an open discussion usually follows.

In one instance, a company has engaged the services of a safety engineer for a regular weekly visit. He spends the day in the plant looking for something that might prove dangerous. After working hours he speaks at a foremen's meeting, pointing out unsafe methods or machines, citing accidents occurring elsewhere that might have been prevented, and lecturing on some phase of accident prevention. The cost of his day's services is no more than that of a skilled workman.

It is noticed that in each example simplicity prevails. In borrowing ideas or methods from large organizations, it is necessary for the small plant to avoid loading itself with supervisors, assistants, or clerical help, if important advantages are to be retained. Intermediaries break down effective contact between the leader and the men, and increase the overhead expense. Often, the adoption of a principle, or an attitude, rather than the method itself, is sufficient. It has been said with reference to the adoption of big plant methods to the small plant: "The small plant must ask itself this question and find the answer to it. What would happen if we were to do without this or that?".

Administrative and Social Programs.

The installation and development of programs which are helpful, but not a necessary part of business, has been slow among small organizations. Employee training, pension plans and unemployment insurance are almost unknown. Perhaps one reason for this condition is that these subjects have been studied for application to large numbers, and what is suited to thousands of employees may not be fitted to the small concern. Another reason is that it is difficult to obtain, or even to estimate, the cost of these programs, and the possible expense in pioneering is too much of a risk. Some firms, however, are benefitting by these programs without an excessive overhead expense.

A silk hosiery mill, after moving to a rural community, found that skilled labor was not available in sufficient quantity to man a rapidly growing plant. The management avoided the common mistake of training green help by observing operators whose sole interest is production. Instead, technical experts, foremen and skilled workmen from the factory worked co-operatively to outline a training program. An educational department was organized, a classroom equipped, and machines were set up in a laboratory.

The work is outlined to cover a training period of two years. All apprentices are recruited from the local high

school, and enter the factory on a trial period of four weeks. During the trial period they are thoroughly trained in the various processes, and receive actual practice on the machines in the laboratory under the supervision of an expert instructor. The products from the laboratory are saleable, which cuts the training cost considerably. In addition to the practical work, instruction is given for eight one-hour periods each week in trade theory, mechanical drawing, shop mechanics, economics and industrial history.

After the trial period, those showing the necessary qualifications are moved out into the factory to work under selected men who are experts in their trade, and capable teachers. The eight hours of classroom work is continued for the first year. During the second year, the apprentices are given increasingly difficult machine work, and classroom study is cut down to three hours a week. In addition, lectures and discussions are held each week, and all employees are invited.

This might appear to be too costly. As a matter of fact, it is not, because the apprentices are producing saleable goods, and the federal government pays part of the expenses of a program of this type by authority of the Smith Hughes Act. It has further profited the company by "attracting higher type employees; reducing labor turnover; reducing the training period; decreasing the amount of

spoiled work, and the number of machine break-downs; supplying trained help and future executive material; and strengthened the plant morale and spirit of craftsmanship". This scheme might well serve as a model for many of our small plants requiring well trained workers.

During the present depression, it has been frequently pointed out that, in spite of what the large corporations, such as the Standard Oil of New Jersey, do to provide relief against unemployment, a complete solution of this problem rests upon relief measures by smaller companies. Most executives think that such measures are impossible, because of limited resources. If not impossible, it does seem quite a burden, and one of the best methods is along co-operative lines.

The Rochester Plan consists in the co-operation of a number of companies, both large and small, in order to give unemployment relief. Briefly, the plan is: A central employment bureau attempts to find work for laid-off employees. After two weeks of unemployment, a benefit equal to sixty per cent. of average earnings is paid for six to thirteen weeks, according to the years of service.

Our interest is not so much in the plan. Rather, is the cost in proportion to the small concern's resources? It is, certainly, in this case. The agreement calls for a reserve to be set up by each company during 1931 and 1932. It is es-

timated that in 1933 sufficient funds to pay the benefits will have accumulated. The actual cost for one company, up to November, 1932, has been one per cent. of its annual payroll.

It is interesting to note the costs of other employee-benefit plans, conducted independently by this same company. A sick benefit plan is financed by setting aside a sum equal to three-quarters of one per cent. of the annual payroll. This sum is based upon experience. A sum equal to two and three-quarters per cent. of the annual payroll is set aside for death and retirement benefits. This is based on actuarial computation. Besides this, a sum equal to one-half of one per cent. is set aside for special benefits, such as loans and contingencies. Including unemployment relief, the total cost for all plans is equal to five per cent. of the annual payroll.

It seems that, regardless of business conditions, these plans will not prove a burdensome undertaking. Five per cent. of the annual payroll will have little effect upon a company's profits. To make sure that creditors, and periods of depression or expansion can not affect these sums, all the money is trusteed.

Co-operation has long been existent among large concerns, and it promises to become an important factor to smaller concerns. The success of associations of men in

competing lines is well known. For instance, there is a group licensed to manufacture an alloy. Research problems are assigned to various plants, and the results are made known by individual reports to each member. Products are promoted by co-operative advertising, and the cost is paid by assessing the members in ratio of their tonnage to the total tonnage manufactured by the association.

Little attention has been given to what can be accomplished by the association of non-competitors in solving common problems. The small concerns in one industrial community have organized such an association, and members go so far as to exchange work for which other members are better equipped. While such an arrangement is too ideal to become widespread, co-operative methods have enabled some small plants to conduct certain programs at a minimum of expense.

A group of non-competitive manufacturers around Boston have been associated for eleven years. They realized that pooling their knowledge and experience would work to their mutual advantage, and the savings affected attest to the success of the plan.

This association works through functional committees, the members of which are elected because of their knowledge and experience in coping with particular problems. A committee inspects a plant in order to study methods and equipment. Sometimes several visits are made, so that a fair knowledge

and background may be obtained before any recommendations are made. The visits result in a two-fold benefit; the committee gives advice for the solution of problems, and gets ideas for improvement in their own plants.

The director of this organization says: "It is absolutely surprising how many new ideas, applicable by adoption to his own industry, anyone possessing half an imagination can pick up from a tour of inspection of a plant turning out a totally different kind of product. From such visits as these, ideas, which have netted savings from a few to fifty or eighty thousand dollars a year, have been acquired".

This type of association would prove beneficial to all small plants. Ten or twelve concerns in any community must have problems sufficiently common to be worthy of the attention of all. At least, there is the problem of health.

It has been demonstrated by Philadelphia concerns that a small plant can have a practical medical and health program at a reasonable cost. Plants are organized into groups of about a thousand employees, so that there is enough work to secure the services of a full time physician and nurse. A definite schedule is arranged, so that for every one hundred employees, or less, the nurse spends two hours each week at the plant, while the physician is there an hour.

Dispensaries are st up at a cost of two hundred to four hundred dollars.

This plan permits: "an annual examination for all employees; follow up examinations; care of minor illnesses; advice for chronic illnesses; care of minor accidents; emergency treatment of serious accidents; first aid instruction; sanitary surveys of the plant; and health talks to employees".

No large plant could have a more complete health program, and certainly none could conduct it with comparatively less expense than the following table shows.

Table and quotation, "Factory and Industrial Management." July, 1932. Pages 293-294.

TYPE OF PLANT	NUMBER OF EMPLOY-EES	NURSE		PHYSICIAN		TOTAL MONTHLY COST TO PLANT OF SERVICES OF NURSE AND PHYSICIAN
		Hours per week	Salary per month	Hours per week	Salary per month	
Confectioners	60	3¼	17.16	1	11.90	29.06
Bankers	200	9¾	51.65	4	47.74	99.39
Elastic Goods	155	5½	29.04	2	23.80	52.84
Yarns	50	2	10.56	¾	8.82	19.38
Narrow Tape Mills	375	10½	56.59	4	47.74	104.33
TOTAL	840	31	$ 165.00	11¾	$140.00	$305.00

Conclusion.

Small plants have been generally ignored, although they out-number the large by two hundred to one. The possibilities of a small plant are now receiving more attention, and a greater appreciation, because "big business" men have expressed their approval of small industries; the present economic situation favors their development; and, a survey has found small plants prospering.

The small plant has advantages which point to profitable operation plus the ability to meet changing conditions. Disadvantages are generally a result of poor management, but a more satisfactory method of financing is a need. Size, advantages and disadvantages are to be considered, but management is the real reason for profitable operation.

All industries are not open to the small plant. Industries requiring tremendous amounts of capital, or those producing standardized products, hold no future for them. But this leaves a wide field for industries whose products can not be standardized, or which produce for local markets, or which depend upon skilled labor, or which deal intimately with the consumer. It is in these fields that the small business will excel.

It is evident that small plants have been aided by

borrowing big plant methods. Undoubtedly, its present high standing is due, in some measure, to the adoption of research, scientific marketing, and other management tools. A simplicity of method must be maintained, however, if the small plant is to retain important advantages. Often, the adoption of the principle or attitude is sufficient.

Administrative and social programs are not only possible, but have been entirely successful in some small plants. Employee training will pay fine dividends to those plants requiring skilled, intelligent help. Retirement, sick benefit and loan plans have been conducted at a moderate cost. Unemployment insurance is possible at a very low cost by a co-operative method. Research and health programs have been particularly successful through co-operative methods.

Briefly, in addition to its own, the small plant may enjoy all the advantages of the big organizations.

An exhaustive search has failed to reveal a text or anything that resembles a study of the small plant. Yet, a knowledge of the small plants' problems and possibilities is important to the graduate of a business college. If he aspires to an executive position, the odds are, two hundred to one, that he will become an executive in a small business. These odds will increase since we may look for the increase of small plants. No less an authority than Dean Kimball says: "Due to the law of diminishing

"Factory and Industrial Management". Jan. 1933. Page 27.

returns, there is good reason to believe that the future will see an increasing number of small and moderate size plants, and fewer of the immense establishments that we now see, unless these larger plants can obtain monopolistic control - which seems hardly possible".

There is another good reason for the study of small plants by the business student, if we can believe and rely upon the judgment of experienced business men. A typical expression of this reason is voiced by a man who has been an executive in big and little plants. He said: "I believe that small business has paid me bigger dividends than I ever could have collected from big business -- dividends not only in money, but in happiness and in satisfaction. My small business has offered me far greater opportunity for individual initiative and leadership than probably could have been possible in a subordinate position in a great corporation. Its very smallness has widened my interests, enlarged my responsibilities and sharpened my judgment."

"American Magazine". November, 1932. Page 12.

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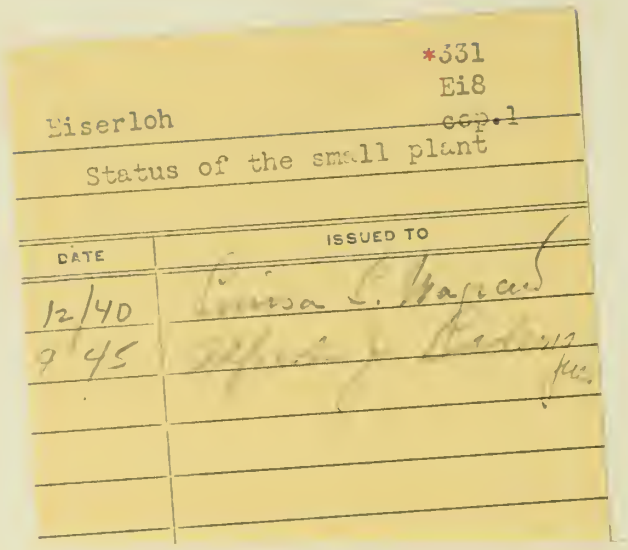

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Status of the small plant

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